CURRICULUM VITAE

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BORN August 11, 1973 in Ukraine.

CITIZENSHIP Israel

EDUCATION AND EMPLOYMENT

2003-present. Postdoctoral research associate, Nuclear Theory Group, Brookhaven National Laboratory.

2001-2003. Postdoctoral research associate, Institute for Nuclear Theory, University of Washington.

1998-2001. Ph.D. in Theoretical Physics from Tel Aviv University.

1996-1998. M.Sc. in Theoretical Physics from Tel Aviv University.

1994–1996. B.Sc. in Physics from Tel Aviv University.

1991–1994. Student, Department of Theoretical Nuclear Physics, Moscow Physical Engineering Institute.

DEGREES

2001. Ph.D. from Tel Aviv University.
Thesis: "Manifestations of high density QCD in deep inelastic scattering".
Supervisor: Prof. E. Levin.

1998. M.Sc. in Quantum Gravity from Tel Aviv University.
Thesis: "Black hole horizon fluctuations".
Supervisor: Prof. A. Casher.

SCIENTIFIC INTERESTS

1. QCD at high energy. High parton density, nonlinear evolution at high energies. Saturation at low x. Color Glass Condensate.

2. Manifestations of high parton density QCD in experiments with hadrons and nuclei.

   - Heavy-ion collisions: initial conditions, heavy quark and quarkonium production, particle correlations.
   - Deep inelastic scattering: structure functions, diffraction, inclusive processes.

3. Perturbative QCD. Operator product expansion, k_T-factorization.

4. Non-perturbative QCD. Duality of QCD and the Classical QCD in a curved spacetime. Conformal bag model.

5. Classical and quantum gravity. Extra dimensions and the Pomeron.

PARTICIPATION IN SCIENTIFIC MEETINGS

1. BRAHMS Collaboration Meeting and Forward Physics Workshop, October 19-23, 2004 University of Kansas, Lawrence, Kansas.

2. XXXIV International Symposium on Multiparticle Dynamics, July 26 -August 1, 2004, Sonoma County, California.

3. 2004 RHIC & AGS Annual Users' Meeting, May 10-14, 2004, BNL.

4. 2nd EIC Workshop, Jefferson Lab, March 15-17, 2004.

5. The 17th International Conference on Ultra-Relativistic Nucleus-Nucleus Collisions (Quark Matter 2004), January 11-17, 2004, Oakland, CA

6. RIKEN BNL Research Center Workshop "High p_T Physics at RHIC", December 2-6, 2003, BNL

7. Fall Meeting of Division of Nuclear Physics, American Physical Society, University of Arizona, Tucson, AZ, October 30-November 01, 2003.

8. "Conference on the Intersections of Particle and Nuclear Physics", New York, May 19-24, 2003.

9. "The First Three Years of Heavy-Ion Physics at RHIC", INT, Seattle, WA, March-June 2003.

10. "QCD and String Theory", INT, Seattle, February 19 - 22, 2003.

11. INT/RHIC Winter Workshop 2002 on First Two Years of RHIC: Theory versus Experiments, INT, Seattle, December 13-25, 2002.

12. Workshop "Coherent Effects at RHIC and LHC: Initial Conditions and Hard Probes", ECT*, Trento, Italy, October 14-25, 2002.

13. RIKEN BNL Research Center workshop: Summer program "Current and future directions at RHIC", BNL, August 5-23, 2002.

14. "Workshop on two-particle interferometry and elliptic flow at RHIC", BNL, June 14-15, 2002.

15. "QCD and Gauge Theory Dynamics in the RHIC Era", ITP, University of California, Santa Barbara, April 8-April 27, 2002.

16. "QCD in the RHIC Era" Conference, ITP, University of California, Santa Barbara, April 8-April 12, 2002.

17. Electron Ion Collider Workshop, BNL, February 28-March 2, 2002.

18. THERA Workshop, DESY, Hamburg, October 18-19, 2000.

19. THERA Workshop, DESY, Hamburg, April 14-15, 2000.

20. Workshop on Small x Physics, Tel-Aviv U., June 15-18 1999.

TALKS AND SEMINARS

1. "Hard Probes at RHIC and the Color Glass Condensate", October 25, 2004, University of Connecticut, Storrs (seminar).

2. "Forward Physics at RHIC: Onset of the Color Glass Condensate", BRAHMS Collaboration Meeting and Forward Physics Workshop, October 19-23, 2004 University of Kansas, Lawrence, Kansas. (invited talk).

3. "Manifestation of the Color Glass Condensate in particle production at RHIC", August 31, 2004, XXXIV International Symposium on Multiparticle Dynamics, Sonoma County, California (invited talk).

4. "Cosmology inside hadrons", June 9, 2004, Tel Aviv University, Israel (seminar).

5. "Hard Probes at RHIC and the Color Glass Condensate", Joint Nuclear Physics Seminar, June 7, 2004, Weizmann Institute, Israel.

6. "High p_T spectra at RHIC and the Color Glass Condensate", 2004 RHIC & AGS Annual Users' Meeting, May 10-14, 2004, BNL (invited talk)

7. "Heavy quark production at RHIC and the Color Glass Condensate", University of California at Riverside, April 27, 2004 (seminar)

8. "Heavy quark production at RHIC and the Color Glass Condensate", University of California at Los Angeles, April 26, 2004 (seminar)

9. "Inclusive signatures of the color glass condensate in ep and eA collisions", 2nd EIC Workshop, Jefferson Lab, March 15, 2004 (invited talk).

10. "Cosmology inside hadrons", BNL, March 11, 2004 (seminar).

11. "Heavy quark production from Color Glass Condensate at RHIC.", Quark Matter 2004 Conference, January 15, 2004 Oakland, CA (talk).

12. "Open Charm Production at RHIC and the Color Glass Condensate", RIKEN BNL Research Center Workshop "High p_T Physics at RHIC", December 2-6, 2003, BNL (invited talk)

13. "Open Charm Production in Heavy-Ion Collisions in High Density QCD", 2003 Fall Meeting of DNP, APS, University of Arizona, Tucson, AZ, October 31, 2003 (talk)

14. "Particle correlations at high partonic density", CIPANP 2003, New York, May 22 (talk)

15. "QCD at high energies at work: DIS and heavy-ion collisions", LANL, May 14 (seminar)

16. "Hierarchy of scales in QCD at high partonic density and open charm production at RHIC", "The First Three Years of Heavy-Ion Physics at RHIC" program at INT, May 12, 2003 (talk)

17. "Hierarchy of scales in QCD at high partonic density", Caltech, April 28, 2003 (seminar)

18. "QCD at high energies at work: DIS and heavy-ion collisions", University of Arizona, April 2, 2003 (seminar)

19. "QCD at high energies at work: DIS and heavy-ion collisions", LBNL, March 31, 2003 (seminar)

20. "Inclusive gluon production in high parton density regime", Workshop "Coherent Effects at RHIC and LHC: Initial Conditions and Hard Probes", ECT*, Trento, Italy, October 24, 2002 (invited talk).

21. "Elliptic flow from minijet production at heavy ion collisions", RIKEN BNL Research Center Workshop, August 6, 2002 (invited talk).

22. "High parton density QCD effects expected at EIC" at EIC Workshop, Brookhaven National Laboratory, NY, March 1st, 2002 (invited talk).

23. "Inclusive gluon production in DIS at high parton density", Brookhaven National Laboratory, NY, February 1st, 2002 (seminar).

24. Seminar "Soft pomeron form dilaton effective lagrangian", State University of NY, Stony Brook, NY, January 31th, 2002 (seminar).

25. "Inclusive gluon production in DIS at high parton density", Columbia University, NY, January 30th, 2002 (seminar).

26. "Manifestations of high density QCD in DIS", Tel Aviv University, Israel, June, 2001 (seminar).

27. "Manifestations of high density QCD in DIS", Institute for Nuclear Theory, University of Washington, Seattle, WA, USA, February 8th, 2001 (seminar).

28. "Predictions for THERA" at THERA Workshop, DESY, Hamburg, Germany, October 18th-19th, 2000 (talk).

29. "Higher twists and gluon saturation at THERA" at THERA Workshop, DESY, Hamburg, Germany, April 14th-15th, 2000 (talk).

AWARDS

2000. Prize for research achievements from the School of Physics and Astronomy, Tel Aviv University.

COMMUNITY SERVICE

Referee for Physical Review C, Physical Review D, Nuclear Physics A, Physics Letters B, The European Physical Journal C, International Journal of Modern Physics E

SCIENTIFIC MEETINGS ORGANIZED

1. "Heavy Quark Production at RHIC" at 2004 RHIC & AGS Annual Users' Meeting, May 13, 2004, BNL.

2. "Theory Summer Program on RHIC Physics", June-July 2004, BNL.

TEACHING EXPERIENCE

1996–2001. Teaching assistant at Undergraduate Physics Lab, School of Physics and Astronomy, Tel Aviv University.

PUBLICATIONS

1. K. Tuchin, "Manifestation of the color glass condensate in particle production at RHIC," arXiv:hep-ph/0410019.

2. D. Kharzeev, Y. V. Kovchegov and K. Tuchin, "Nuclear Modification Factor in d+Au Collisions: Onset of Suppression in the Color Glass Condensate", arXiv:hep-ph/0405045, Phys. Lett. B (in press).

3. D. Kharzeev, E. Levin and K. Tuchin, "QCD in curved space-time: A conformal bag model," arXiv:hep-ph/0403152, Phys. Rev. D (in press).

4. K. Tuchin, "Heavy quark production from color glass condensate at RHIC," J. Phys. G **30**, S1167 (2004) [arXiv:hep-ph/0402298].

5. K. Tuchin, "Heavy quark production by a quasi-classical color field in proton nucleus collisions," Phys. Lett. B **593**, 66 (2004), [arXiv:hep-ph/0401022].

6. D. Kharzeev and K. Tuchin, "Open charm production in heavy ion collisions and the Color Glass Condensate", *Nucl. Phys.* **A735** (2004) 248.

7. K. Tuchin, "Particle correlations at high partonic density," AIP Conf. Proc. **698**, 698 (2004) [arXiv:hep-ph/0307097].

8. D. Kharzeev, Y. V. Kovchegov and K. Tuchin, "Cronin effect and high-p(T) suppression in p A collisions," Phys. Rev. D **68**, 094013 (2003).

9. Yu. Kovchegov, K. Tuchin, "Correlation functions and cumulants in elliptic flow analysis", *Nucl. Phys.* **A717** (2003) 249.

10. D. Kharzeev, E. Levin and K. Tuchin, "Classical gluodynamics in curved space-time and the soft pomeron," *Phys. Lett.* **B547** (2002) 21.

11. Yu. Kovchegov, K. Tuchin, "Elliptic flow from minijet production in heavy ion collisions", *Nucl. Phys.* **A708** (2002) 413.

12. Yu. Kovchegov, K. Tuchin, "Inclusive gluon production in DIS at high parton density", *Phys. Rev.* **D65** (2002) 074026.

13. H. Abramowicz,..., K. Tuchin *et. al.* , "Tesla: the superconducting electron positron linear collider with an integrated X-ray laser laboratory. Technical design report. PT. 6: Appendices. Chapter 2: THERA: electron proton scattering at $\sqrt{s} \approx 1$ TeV", `DESY-01-011FB, DESY-2001-011FB, DESY-TESLA-2001-23FB, ECFA-2001-209FB, DESY-TESLA-FEL-2001-05FB`.

14. E. Gotsman, E. Levin, M. Lublinsky, U. Maor, E. Naftali, K. Tuchin, "High density QCD at THERA", `TAUP-2665-2001`, *hep-ph/0101344*.

15. E. Levin, K. Tuchin, "Nonlinear evolution and saturation for heavy nuclei in DIS", *Nucl. Phys.* **A693** (2001) 787.

16. E. Levin, K. Tuchin, "New scaling in high energy DIS", *Nucl. Phys.* **A691** (2001) 779.

17. E. Gotsman, E. Levin, M. Lublinsky, U. Maor, E. Naftali, K. Tuchin, "A unitarized QCD model for deep inelastic ep scattering", *J. Phys.* **G27** (2001) 2297.

18. E. Gotsman, E. Levin, U. Maor, L. McLerran, K. Tuchin, "Higher twist corrections and maxima for DIS on a proton in the high density QCD region", *Phys. Lett.* **B506** (2001) 289.

19. K. Tuchin, "The Pomeron intercept in $\lambda\phi^3$ theory in 4 Minkowski + 1 compact dimensions", *Phys. Lett.* **B497** (2001) 111.

20. E. Gotsman, E. Levin, M. Lublinsky, U. Maor, K. Tuchin, "Energy dependence of diffractive production at HERA", *Nucl. Phys.* **A697** (2002) ,521

    "Energy dependence of σ^{DD}/σ_{tot} in DIS and shadowing corrections", TAUP-2639-2000, *hep-ph/0007261*.

21. E. Gotsman, E. Levin, U. Maor, L. McLerran, K. Tuchin, "Higher twists and maxima for DIS on nuclei in high density QCD region", *Nucl. Phys.* **A683** (2001) 383.

22. E. Gotsman, E. Levin, M. Lublinsky, U. Maor, K.Tuchin, "Shadowing corrections and diffractive production in DIS on nuclei", *Phys. Lett.* **B492** (2000) 47.

23. E. Levin, K. Tuchin, "Solution to the evolution equation for high parton density QCD", *Nucl. Phys.* **B573** (2000) 833.

24. K. Tuchin, "On black hole horizon fluctuations", *Nucl. Phys.* **B553** (1999) 333.